

INTERNATIONAL PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

Date of mailing:

17 February 2000 (17.02.00)

International application No.:

PCT/AU99/00011

Applicant's or agent's file reference:

1986858:KJB

International filing date:

12 January 1999 (12.01.99)

Priority date:

31 July 1998 (31.07.98)

Applicant:

NEILSON, Brad

1. The designated Office is hereby notified of its election made:



in the demand filed with the International preliminary Examining Authority on:

30 June 1999 (30.06.99)



in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was



was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer:

J. Zahra

Telephone No.: (41-22) 338.83.38

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU 99/00011

A. CLASSIFICATION OF SUBJECT MATTER																						
Int Cl ⁶ : B25H 5/00, F16M 13/00																						
According to International Patent Classification (IPC) or to both national classification and IPC																						
B. FIELDS SEARCHED																						
Minimum documentation searched (classification system followed by classification symbols) IPC B25H 5/00, F16M 13/00																						
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU: IPC as above																						
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)																						
C. DOCUMENTS CONSIDERED TO BE RELEVANT																						
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
X	US 5125615 A (McGUIRE) 30 June 1992 Figures 1 and 3	1, 2																				
A	US 4717110 A (FOHRMAN) 5 January 1988 Figure 1	1																				
A	US 3915308 A (RATZLOFF et al) 28 October 1975 Figure 1	1																				
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input type="checkbox"/> See patent family annex																						
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent but published on or after the international filing date</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L"</td> <td>document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
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Date of the actual completion of the international search 8 February 1999		Date of mailing of the international search report 17 FEB 1999																				
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No.: (02) 6285 3929		Authorized officer JASON PREMNATH Telephone No.: (02) 6283 2127																				

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Materials Support Stand

Field of the invention

This invention relates to a materials support stand which may be used to support materials and equipment used in underground mining operations.

5 Background of the invention

Underground mining operations are frequently carried out in cramped and hazardous conditions and it is important that materials and equipment used in the operation are kept well ordered and readily accessible to ensure that the operation can be carried out as smoothly as possible. Modern mining techniques have increased the mechanisation of the mining operation and large underground mining machines are frequently employed to carry out many of the operations which were previously carried out by individuals using hand held equipment.

One modern advance is to provide a vehicle which carries out semi-automated roof bolting operations. The equipment carried on such vehicles is highly automated but workers are still required to change drill rods, insert roof bolts into the machine, and operate the apparatus. It is important that such workers have materials and equipment readily available to them so they are not inconvenienced having to locate items on the floor or the machine during the bolting operation or walk between the bolting apparatus and a storage facility.

Summary of the invention

According to the invention there is provided an equipment support stand adapted to be used on an underground mining machine which includes at least one apparatus thereon which will utilise a plurality of interchangeable items, said stand comprising:

- 20 a base adapted to stand on a surface of a said machine adjacent to said apparatus;
- an upstanding rack mounted to said base, the rack being shaped and configured to hold and/or support said items; and
- securing means for releasably securing said base to said surface.

The upstanding rack may comprise a frame having one or more arms projecting laterally therefrom to at least one side thereof, said items in use being held in position by said arms. Preferably there are at least a pair of arms aligned generally side by side with each other and defining a space therebetween in which said items may be located.

The equipment stand may be adapted to be coupled back to back with another stand to provide for double storage capacity as well as to provide access from at least two sides.

30 Optionally the stand may include one or more magnetic clamps for holding ferrous metal items to the stand. The stand may include one or more pegs projecting upwardly at an inclined angle to the horizontal, said pegs adapted to support annular items or items having holes or bores therethrough.

The securing means may comprise a plurality of clamps which incorporate a hook formation adapted to pass through an aperture in said surface of said machine and hook beneath said surface to thereby rigidly fix the support

stand to the surface. The hook formation may be tensionable by an over centre locking lever connected thereto which, when tensioned, will tightly clamp the stand to the surface.

Various embodiments of the invention are described below by way of examples. In the descriptive references made to the accompanying drawings but these specific features shown in the drawings should not be construed as limiting on the invention.

When used in this specification, the term "comprises" or "comprising" should be interpreted inclusively rather than exhaustively or exclusively.

Brief description of the drawings

Figure 1 shows a perspective view of a mining machine having an equipment stand according to the invention mounted thereon.

Figure 2 shows a perspective view of a first embodiment of equipment stand according to the invention.

Figure 3 shows a side view of equipment stand shown in figure 2.

Figure 4 shows a perspective view of a second embodiment of an equipment stand according to the invention.

Figure 5 shows a side view of the stand shown in figure 4.

Figure 6 shows two equipment stands similar to that shown in figure 4 mounted together in back to back arrangement.

Detailed description of the embodiments

Referring initially to figure 1, a mining machine 10 is shown having a platform 12 which is supported on a pair of endless drive tracks 14 and which carries a series of bolting rigs 16 on the forward end thereof for installing roof and rib bolts in a mine entry. A pair of temporary support members 18 are adjacent to the bolting rigs 16. Power and control apparatus indicated generally at numeral 20 is mounted towards the rear of the platform 12 and a removable storage pod 22 is also mounted towards the rear of the platform. The storage pod 22 has compartments 24 therein into which various consumable items such as roof and rib bolts, washers, resin capsules and the like will be stored. In addition, the machine will carry a supply of replacement drill rods so that the drilling operations and bolting operations can be carried out in a relatively uninterrupted fashion.

Each of the drill rigs 16 has a control station 26 associated therewith for controlling the drilling and bolting operations.

The platform 12 defines a generally flat work area 28 and operators will stand on the work area 28 to operate the individual control stations 26 for the bolting rigs 16. Preferably the work area 28 is formed from a welded or expanded metal mesh material, as is commonly used for work platforms.

To assist the operators it is necessary to have consumable items and other materials and equipment used in the bolting and drilling operation close at hand. Individual operators will generally want the equipment and materials for which they are responsible arranged in a particular fashion and located immediately adjacent to them whilst they

are standing at the operator stations 26 so the operators do not need to move back to the storage pod 22 or storage tables 30 located above the drive apparatus 20 each time an item of equipment is required.

To assist the operator an equipment stand, indicated diagrammatically in figure 1 at numeral 32 is provided. Generally there will be an equipment stand 32 associated with each of the operator stations 26 and those equipment stands 32 will be positioned by individual operators so as best to suit their individual mode of operation. Although in figure 1 only a single equipment stand 32 is shown it is envisaged that there will be at least three equipment stands on the platform 12 and possibly four such stands.

Embodiments of the stand are shown in more detail in figures 2 to 6 of the drawings. Referring initially to figures 2 and 3, an equipment stand is shown having a base 36 which has a lower compartment 38 mounted thereto and an upstanding rack 40 extending vertically thereabove. Rack 40 comprises a pair of uprights 42 which terminate in a cross piece 44 at the upper end of the rack. A pair of arms 46 project forwardly from the cross piece 44 and provide a space 48 into which rib bolts and the like may be supported and retained. A chain 50 is provided for retaining bolts within the space 48. The lower end of the bolts will locate in the bin 38. Towards each side of the rack is a U-shaped bracket 52 shaped to accommodate a drill rod therein. The lower end of the drill rods will locate in square sockets 54 secured to the base of the stand.

Three wedge or other shaped hooks 56 are mounted to the base 36 and are connected to over centre locking clamps 58. The hooks 56 are adapted to locate below platform 12 to secure the stand in position. Platform 12 will generally have a mesh or like covering material and the hooks 56 will locate below that mesh. The over centre clamps 58 will then be used to tension the hooks 56 pulling the wedged shaped end up against the underside of the mesh. With the three hooks tightly clamped in position the stand will be securely held and therefore will not fall over during bolting operations or whilst the machine is being moved from one location to another.

Turning now to figures 4 and 5 of the drawings, a similar stand is shown and this stand includes a rectangular shaped bracket 60 at the upper end of the frame 62, the bracket 60 being similarly shaped to the bin 64. The bracket 60 and bin 64 are in alignment with each other so that a rectangular slot is provided which is adapted to receive a box of resin capsules. The box will be retained in position by the bracket 60 and individual resin capsules can be removed from the box from upper end thereof as and when required for bolting operations. The stand shown in figure 4 includes three arms or pegs 66 which extend upwardly from the rack 62 and provide pegs on which items such as washers, nuts, butterfly plates and other items of annular configuration or which have holes therethrough, can be located and held in position on the rack. It will be noted that each of the pegs 66 is upwardly inclined to ensure that items located thereon do not inadvertently become dislodged as the machine vibrates in use or moves around.

The stand shown in figures 4 and 5 is shown having a pair of side by side drill rod retaining brackets 68, each of which has a magnetic clamp 70 associated therewith. The drill rods will be placed into the rectangular sockets 72 and upper end of the drill rods will be clamped in position by the magnetic clamps 70. It is envisaged that the magnetic clamp 70 will comprise rare earth magnets which will ensure that a reasonably high force of attraction exists between the magnetic clamp and the drill rod. It will be a simple matter to remove the drill rod from the

bracket 68 by pulling on it and therefore this will provide a relatively quick arrangement for retaining drilling rods in position on the stand yet having the drill rods readily available for use as and when required.

Turning now to figure 6, two of the stands are the type shown in figures 4 and 5 have been joined together back to back to provide a larger capacity stand which can be used from opposite sides thereof. The stand includes clamps 74 for clamping a combined stand in the centre of the platform 12 adjacent to the two central bolting rigs 16. A combined stand shown in figure 6 has many of the features of the stand that is shown in figures 4 and 5.

Clearly, for different mining operations, different features may be required on the stands. The quick and simple arrangement by means of which the stand is securely clamped to a platform is considered to be advantageous particularly since it allows the stand to be moved from one location to another location on the platform without the use of special tools or the like. Clearly other forms of hook arrangements might be used if the wedged shaped arrangements as shown in the drawings are not suitable for a particular platform configuration.

Claims

1. An equipment support stand adapted to be used on an underground mining machine which includes at least one apparatus thereon which will utilise a plurality of interchangeable items, said stand comprising:
5 a base adapted to stand on a surface of a said machine adjacent to said apparatus;
an upstanding rack mounted to said base, the rack being shaped and configured to hold and/or support said items; and
securing means for releasably securing said base to said surface.
2. An equipment support stand as claimed in claim 1, wherein said upstanding rack comprises a frame having one or more arms projecting laterally therefrom to at least one side thereof.
- 10 3. An equipment support stand as claimed in claim 1 or 2, wherein said items in use are held in position by said arms.
4. An equipment support stand as claimed in any one of claims 1 to 3, wherein there are at least a pair of arms aligned generally side by side with each other and defining a space therebetween in which said items can be located.
- 15 5. An equipment support stand as claimed in any one of claims 1 to 4 being adapted to be coupled back to back with another stand to provide for double storage capacity.
6. An equipment support stand as claimed in any one of claims 1 to 5 being adapted to be coupled back to back to provide access from at least two sides.
7. An equipment support stand as claimed in any one of claims 1 to 6, including one or more magnetic
20 clamps for holding ferrous metal items to the stand.
8. An equipment support stand as claimed in any one of claims 1 to 7, including one or more pegs projecting upwardly at an inclined angle to the horizontal, said pegs adapted to support annular items or items having holes or bores therethrough.
9. An equipment support stand as claimed in any one of claims 1 to 8, wherein the securing means comprises
25 a plurality of clamps which incorporate a hook formation adapted to pass through an aperture in said surface of said machine and hook beneath said surface to thereby rigidly fix the support stand to the surface.
10. An equipment support stand as claimed in claim 9, wherein said hook formation is tensionable by an over centre locking lever connected thereto which, when tensioned, will tightly clamp the stand to the surface.

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 10 NOV 1999

WIPO PCT

Applicant's or agent's file reference 1986858	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).	
International application No. PCT/AU 99/00011	International filing date (day/month/year) 12 January 1999	Priority Date (day/month/year) 31 July 1998
International Patent Classification (IPC) or national classification and IPC Int. Cl.⁶ B25H 5/00, F16M 13/00		
Applicant 1. JOY MM DELAWARE, INC. et al.		

1.	This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.																
2.	This REPORT consists of a total of 5 sheets, including this cover sheet. <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of 6 sheet(s).																
3.	This report contains indications relating to the following items: <table style="width: 100%;"> <tr> <td style="width: 5%;">I</td> <td><input checked="" type="checkbox"/> Basis of the report</td> </tr> <tr> <td>II</td> <td><input type="checkbox"/> Priority</td> </tr> <tr> <td>III</td> <td><input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td>IV</td> <td><input checked="" type="checkbox"/> Lack of unity of invention</td> </tr> <tr> <td>V</td> <td><input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td>VI</td> <td><input type="checkbox"/> Certain documents cited</td> </tr> <tr> <td>VII</td> <td><input type="checkbox"/> Certain defects in the international application</td> </tr> <tr> <td>VIII</td> <td><input checked="" type="checkbox"/> Certain observations on the international application</td> </tr> </table>	I	<input checked="" type="checkbox"/> Basis of the report	II	<input type="checkbox"/> Priority	III	<input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	IV	<input checked="" type="checkbox"/> Lack of unity of invention	V	<input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	VI	<input type="checkbox"/> Certain documents cited	VII	<input type="checkbox"/> Certain defects in the international application	VIII	<input checked="" type="checkbox"/> Certain observations on the international application
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VII	<input type="checkbox"/> Certain defects in the international application																
VIII	<input checked="" type="checkbox"/> Certain observations on the international application																

Date of submission of the demand 30 June 1999	Date of completion of the report 3 November 1999
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200 WODEN ACT 2606 AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer JASON PREMNATH Telephone No. (02) 6283 2127

I. Basis of the report**1. With regard to the elements of the international application:***

- ☐ the international application as originally filed.
- ☒ the description, pages , as originally filed,
 pages , filed with the demand,
 pages 1-4, filed with the letter of 03 September 1999.
- ☒ the claims, pages , as originally filed,
 pages , as amended (together with any statement) under Article 19,
 pages , filed with the demand,
 pages 5-6, filed with the letter of 03 September 1999.
- ☒ the drawings, pages 1-3, as originally filed,
 pages , filed with the demand,
 pages , filed with the letter of .
- ☐ the sequence listing part of the description:
 pages , as originally filed
 pages , filed with the demand
 pages , filed with the letter of .

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, was on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
- ☒ not complied with for the following reasons:

The international preliminary examination report has been drawn up in respect of the entire international application but the International Preliminary Examination Authority is of the opinion that the application does not appear to comply with the requirements of unity of invention as set forth in the PCT regulations (Article 34(3), Rule 68(1) PCT).

The claims in general relate to an equipment support stand having a base, an upstanding rack mounted on the base and a securing means for releasably securing the base to a surface. The separate groups of inventions are defined by the following independent claims:

1. Claim 1 relates to an equipment support stand having a pair of arms aligned side by side defining a space therebetween.
2. Claim 2 relates to an equipment support stand adapted to be coupled back to back with another stand to provide for double storage capacity.
3. Claim 3 relates to an equipment support stand having one or more pegs adapted to support annular items.
4. Claim 4 relates to an equipment support stand having a plurality of clamps with hook formation to rigidly fix the support stand to the surface.

Since the above mentioned groups of claims do not share any of the technical features identified, a "technical relationship" between the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept.

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
- ☐ the parts relating to claims Nos.

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims 1-13	YES
	Claims	NO
Inventive step (IS)	Claims 1-13	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-13	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)**NOVELTY (N) and INVENTIVE STEP (IS)**

The claims relate to an equipment support stand for use on an underground mining machine to support mining equipment. The said equipment support stand has a base, an upstanding rack mounted on the base and a securing means for releasably securing the base to a surface. The nearest prior art US 5125615 teaches a similar stand but does not teach the following special features defined in the claims.

1. Claim 1 - a pair of arms aligned side by side defining a space therebetween.
2. Claim 2 - the equipment support stand adapted to be coupled back to back with another stand to provide for double storage capacity.
3. Claim 3 - one or more pegs adapted to support annular items.
4. Claim 4 - plurality of clamps with hook formation to rigidly fix the support stand to the surface.

These features are novel and considered to be inventive.

The dependant claims 5-13 concern further embodiments of the inventions according to claims 1-4 and they are also novel and inventive.

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. Claims 7-13 are not correctly appended. For example claim 7 defines that "there are at least a pair of arms aligned...located". Claim 7 is appended to claim 6 which in turn is appended to claim 1 and claim 1 already defines the above mentioned feature. Similar defects exist for claims 8-13.